Progress on ERT π^0 efficiency study

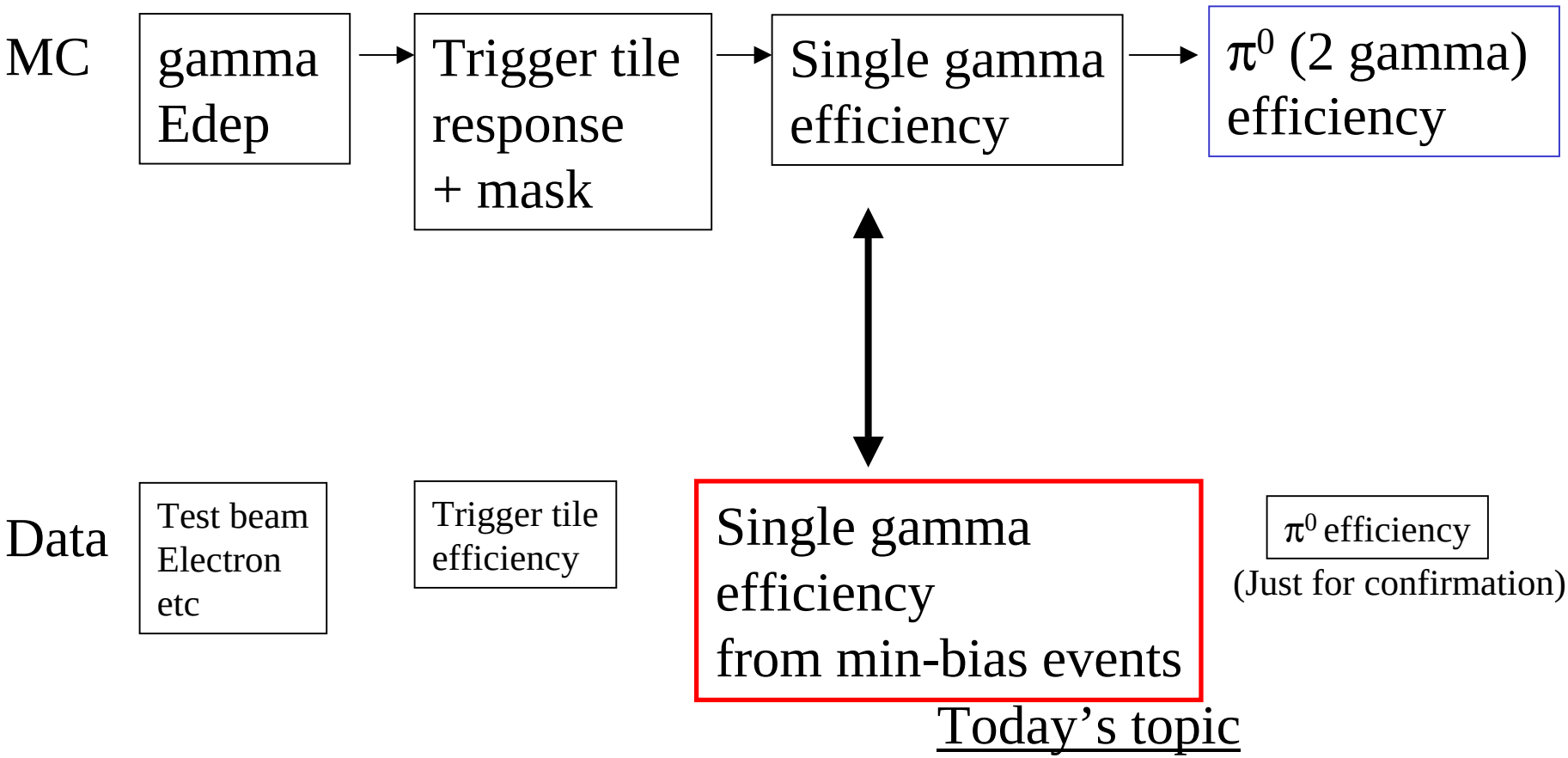
~~Spin PWG June 6,2002~~

LVL-1 meeting June 14,2002

Analysis meeting June 14,2002

Kensuke Okada

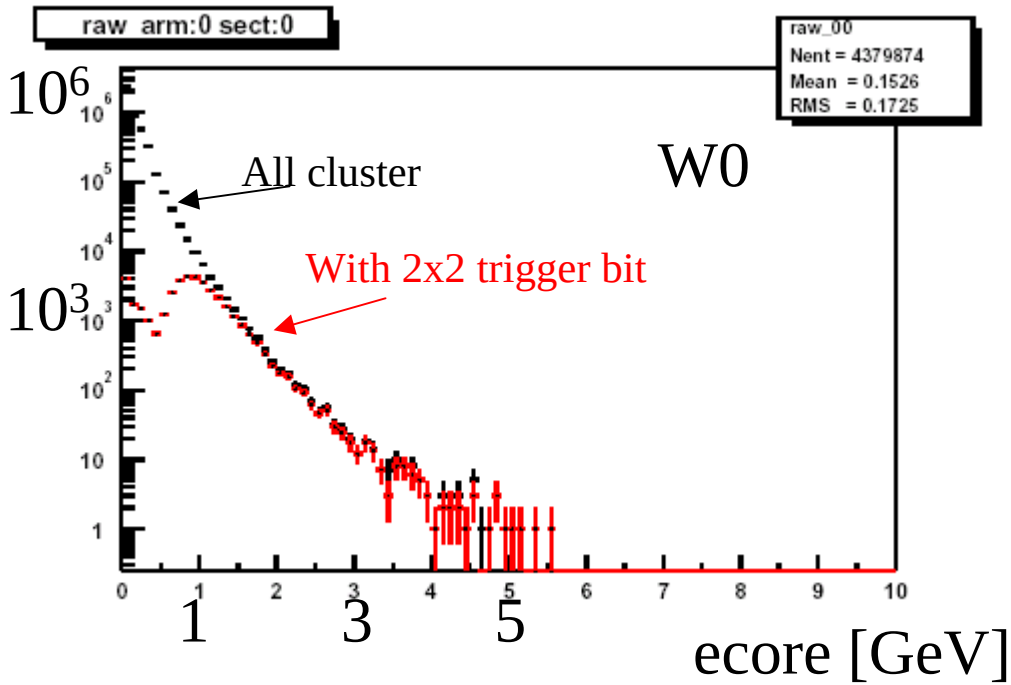
Plan


MC
gamma Edep
Trigger tile response + mask
Single gamma efficiency
π^0 (2 gamma) efficiency
Data
Test beam Electron etc
Trigger tile efficiency
Single gamma efficiency from min-bias events
π^0 efficiency
(Just for confirmation)
Today's topic

Data selection

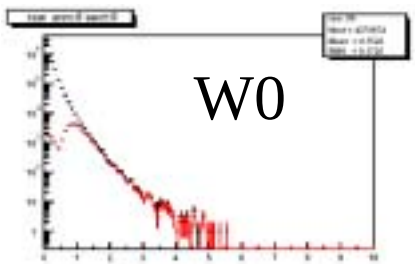
microDSTs : CCJ pro23 run40082~run40292 (about 1900 files)
Events : scaled min-bias (NTC||BBC) events
EMC cluster : prob_photon>0.02. Maximum ecore in SM

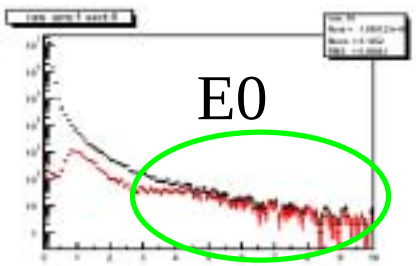
Histogram of ecore sector by sector

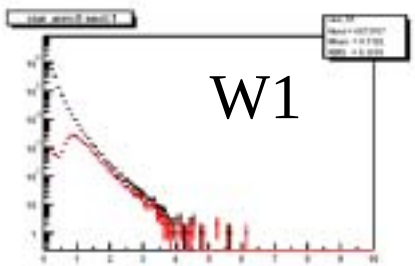


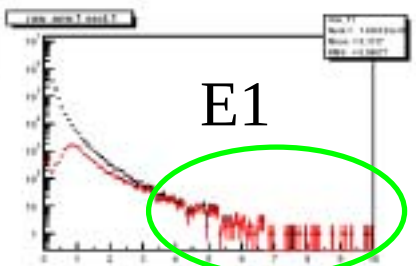
Some sectors have large energy deposit.

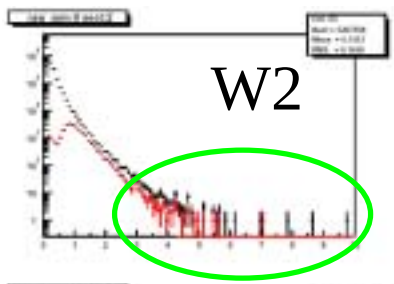
What are those?

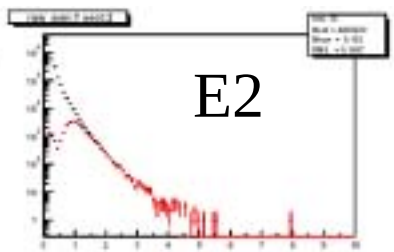


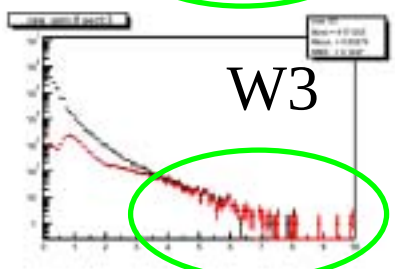


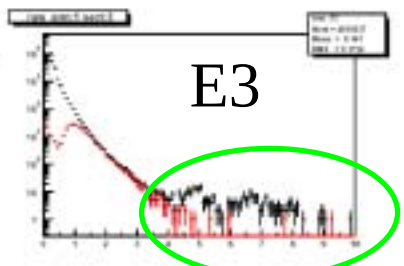




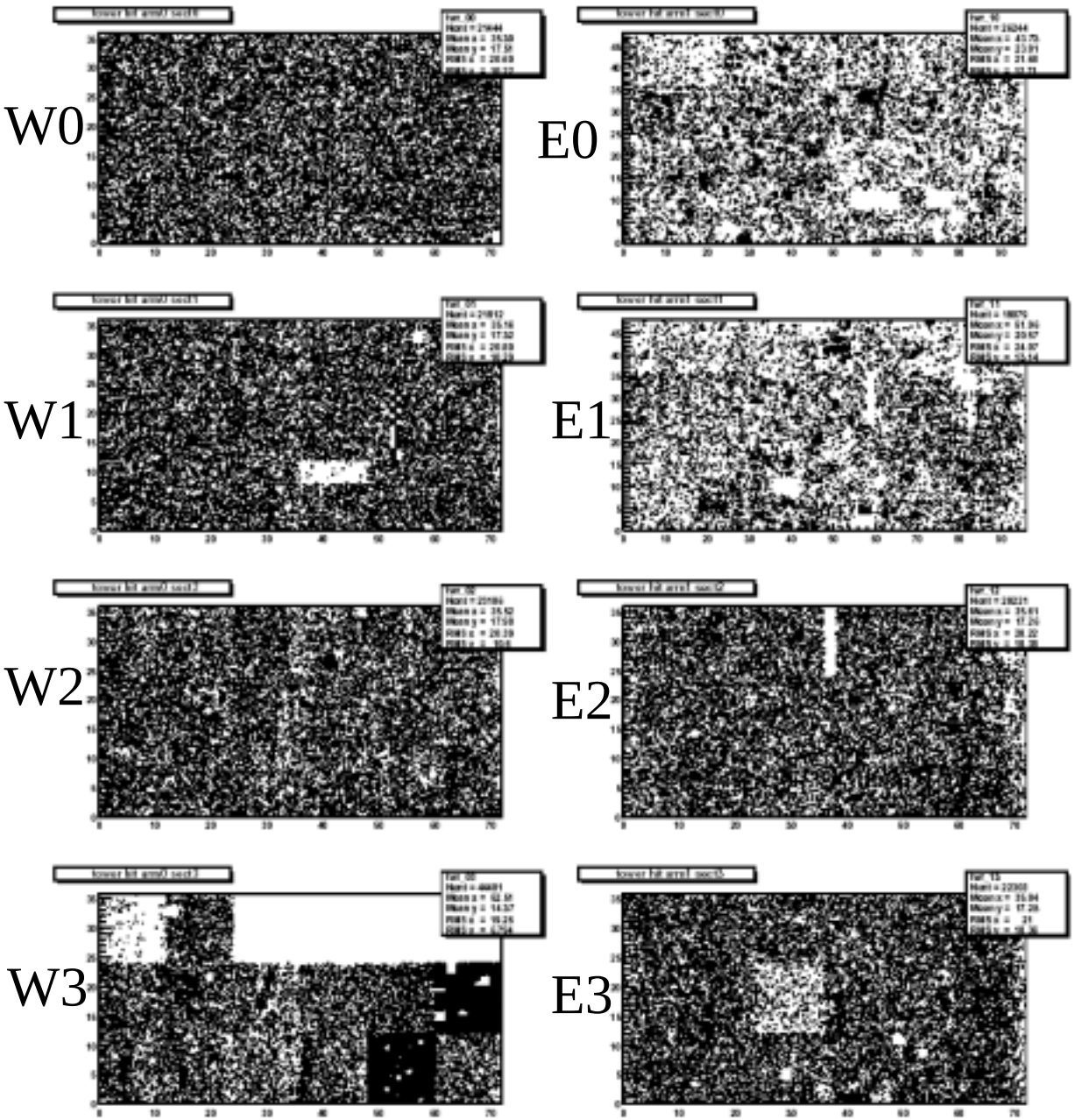








Hot channels?



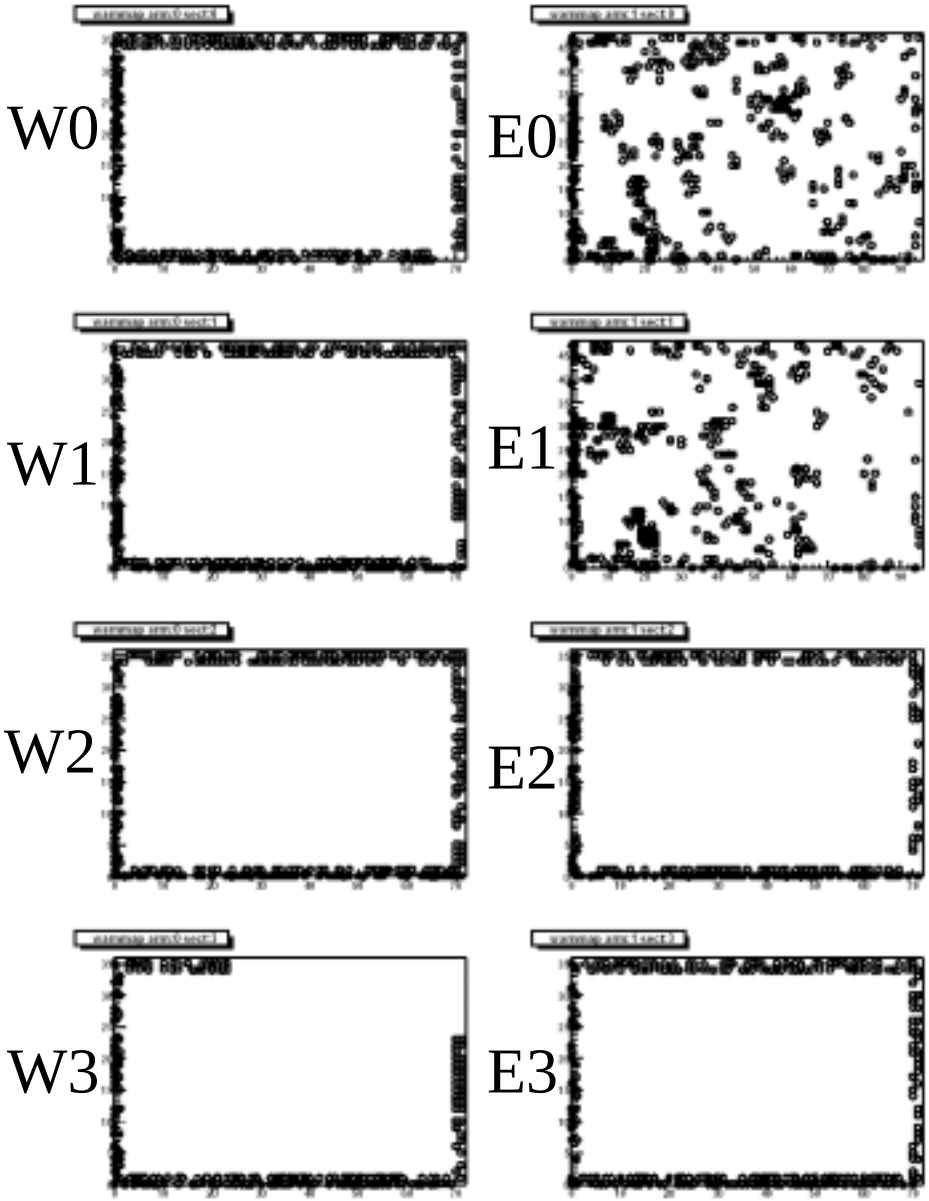
Over 1GeV deposit cluster position

Definition

#hits_hottower > {#hits_sector_average +5*sqrt(#hits_s_ave)}

Sector	#hot tower
W0	4
W1	14
W2	7
W3	293
E0	107
E1	85
E2	6
E3	22

EMC warn map?



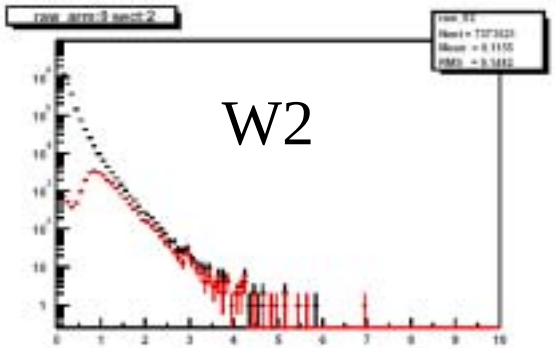
From
Run40083-0010 CCJ pro23

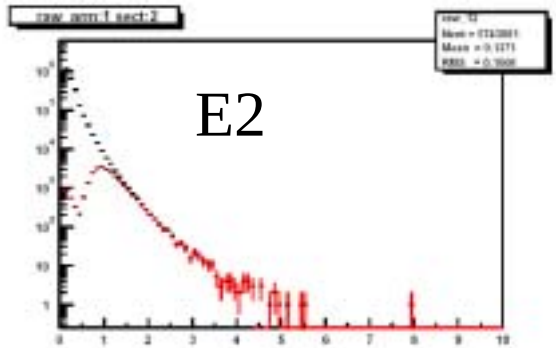
position of (warnmap!=0)

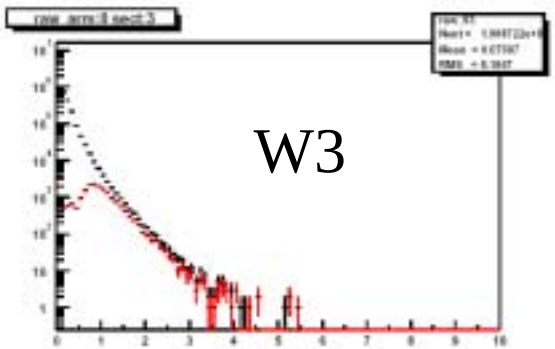
Only edge in PbSc
It is not helpful.

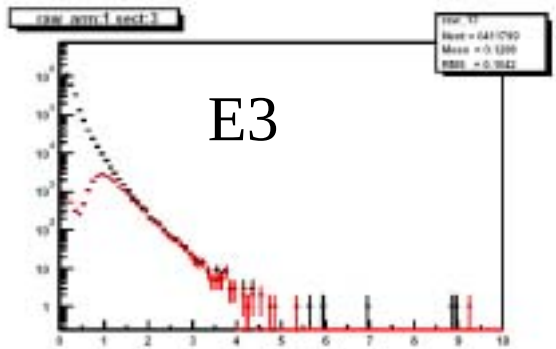
After masking hot towers

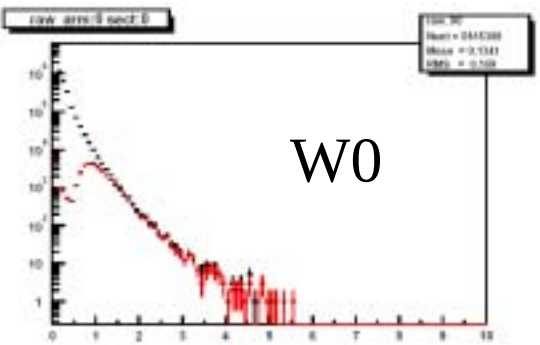
Red curve :2x2trigger bit on

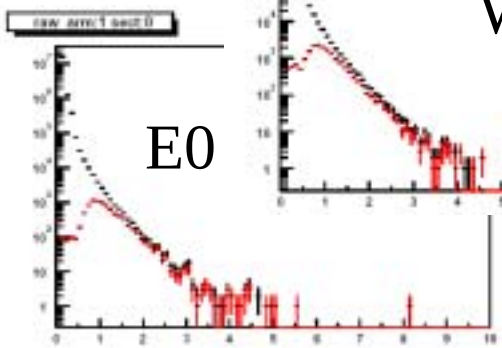


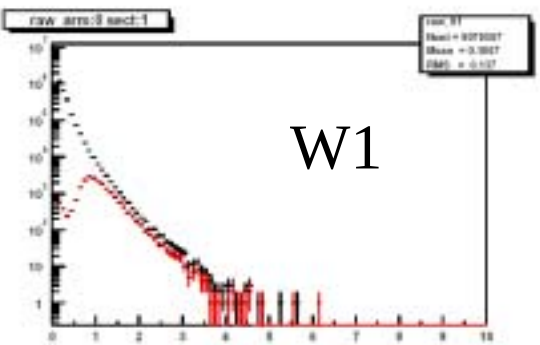


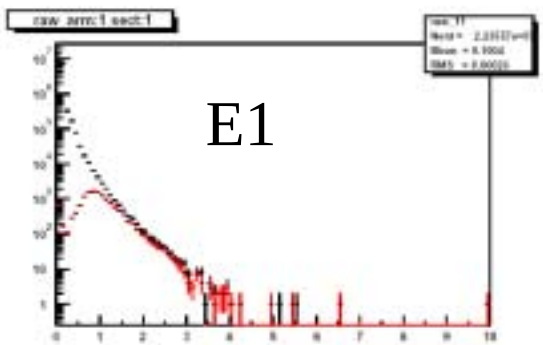






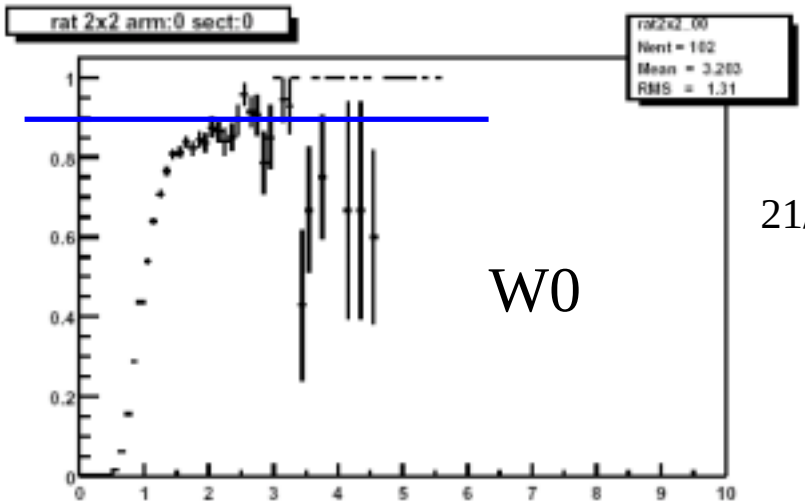


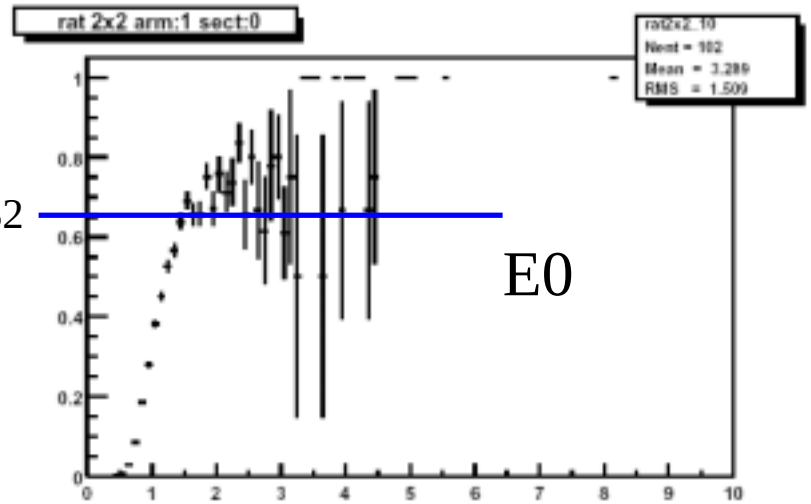


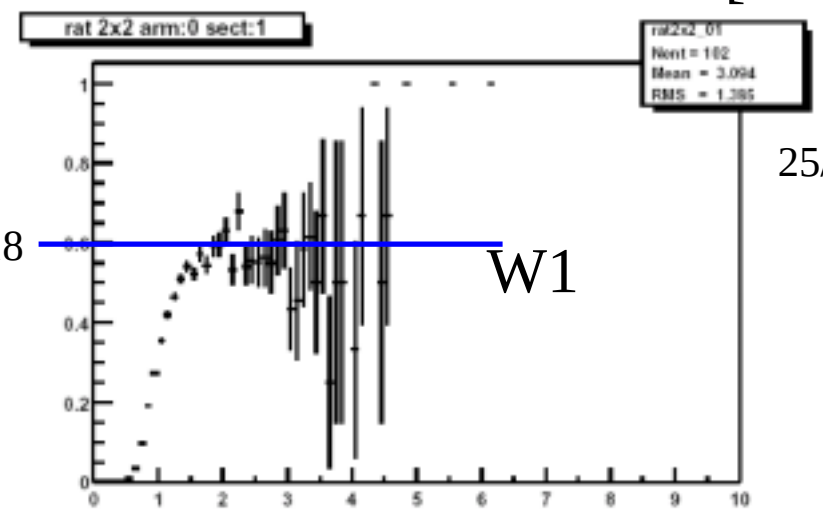


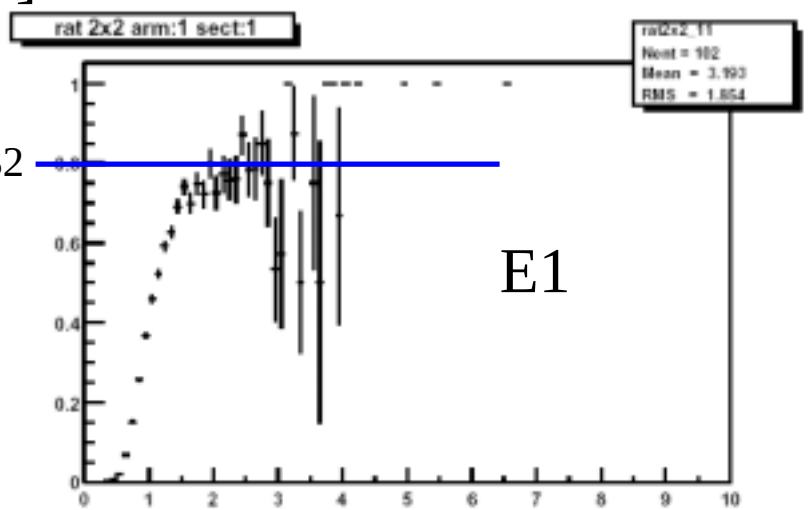
It looks better
even for PbGls (E0,E1)

Efficiency



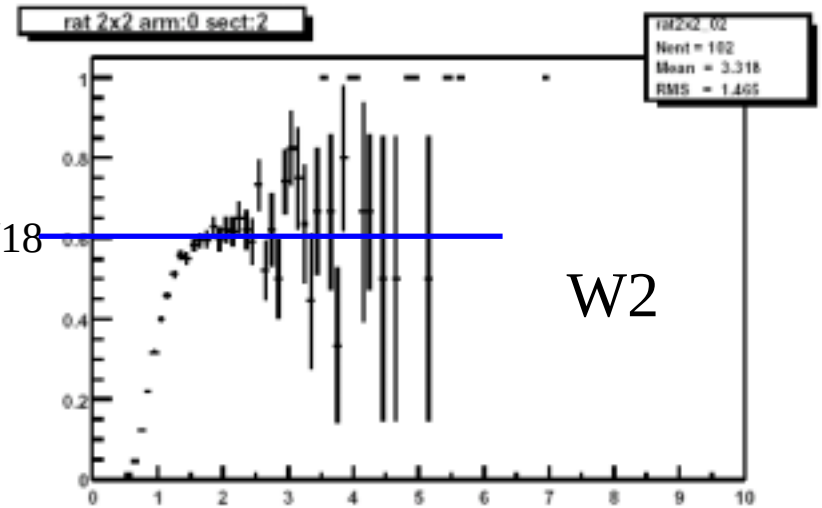






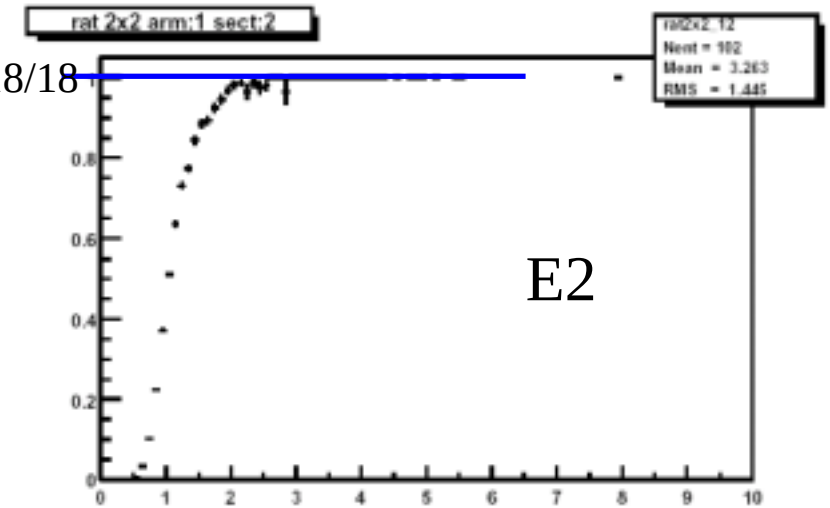
Maximum point from trigger mask info

Efficiency



11/18

W2

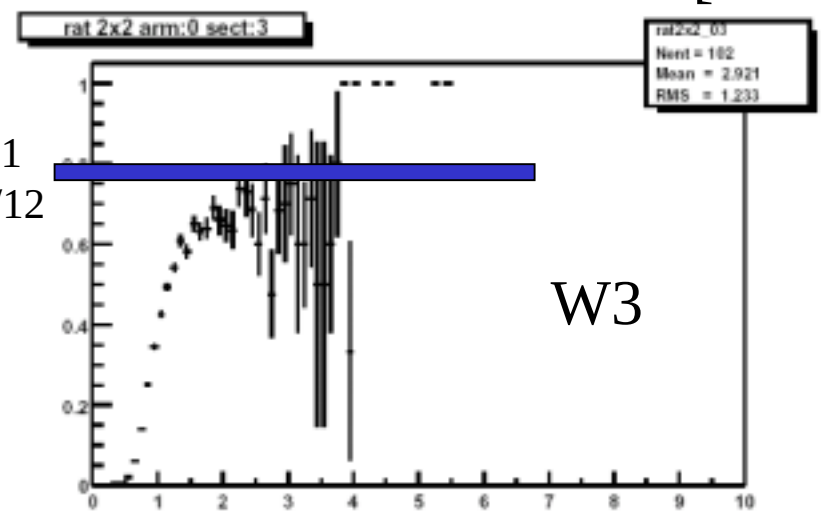


18/18

E2

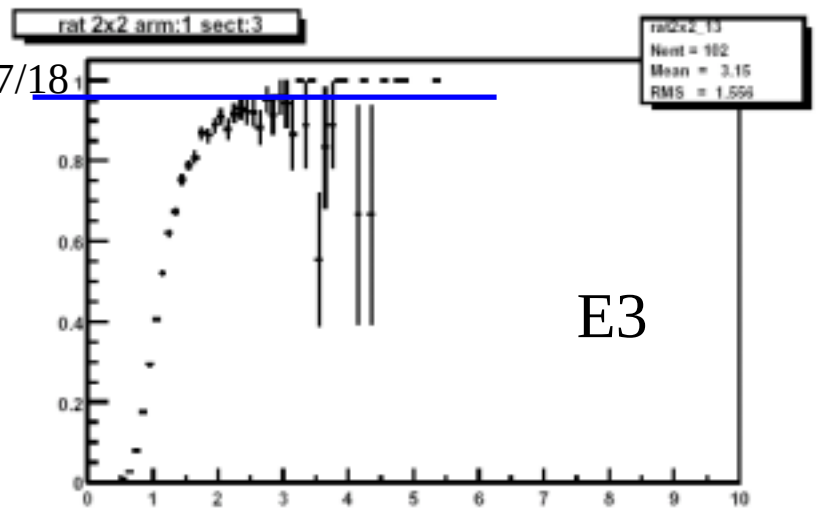
3

ecore[GeV]



9/11
~9/12

W3

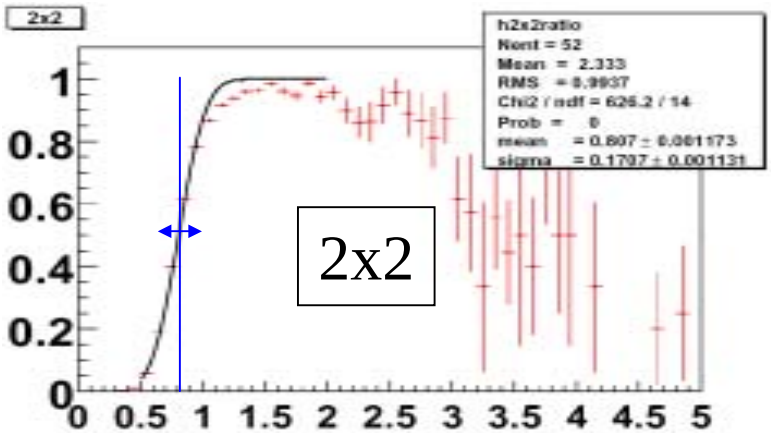


17/18

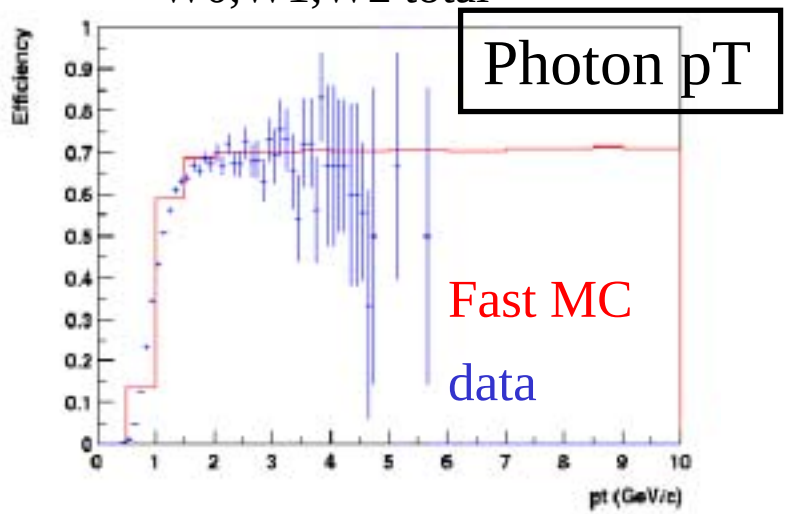
E3

Saturation points seems reasonable

Fast MC (by Sasha.B)



W0,W1,W2 total

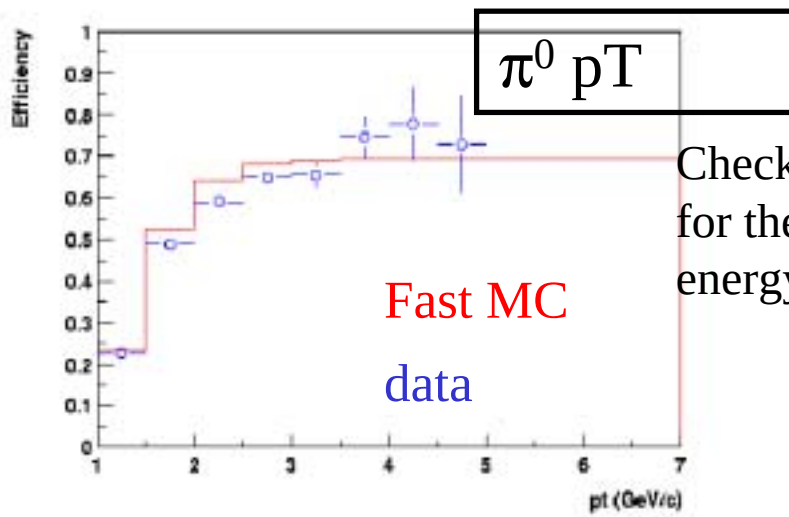


Input : tile efficiency of one gaussian fit

Result : photon efficiency and

π^0 efficiency.

They agree well. The mask effect appears.



Check trigger bit for the higher energy photon

Summary

$2x2_{high}$ trigger single gamma efficiency was studied.
There are several hot channels.
Sasha's fast MC works

To get pure photon cluster

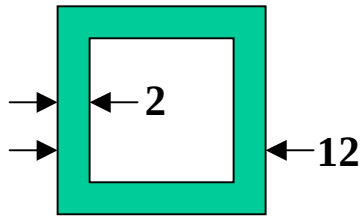
- Laser event rejection,EMCal tof check, charged particle veto, Vertex cut
- Checking existing warn-map → doesn't work
- same study for $2x2_{low}$

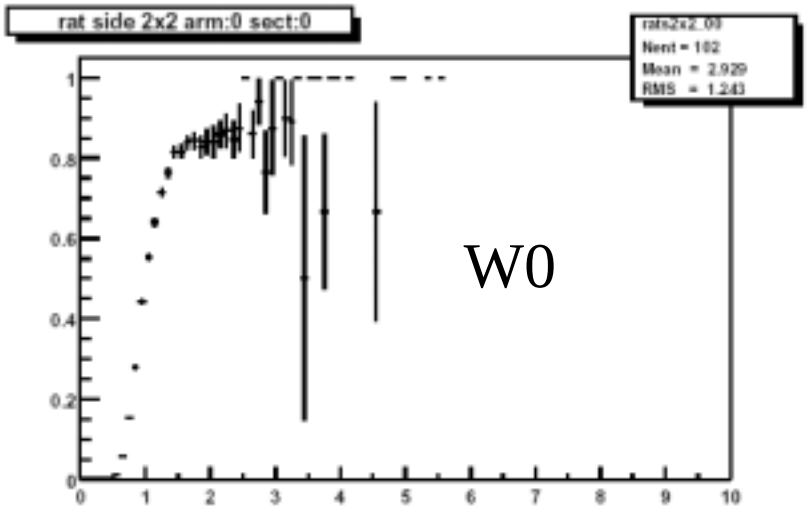
Pass over the ppDST (run together with QA)

- Hopefully I can get tile by tile characteristic
- Correlation between triggers.

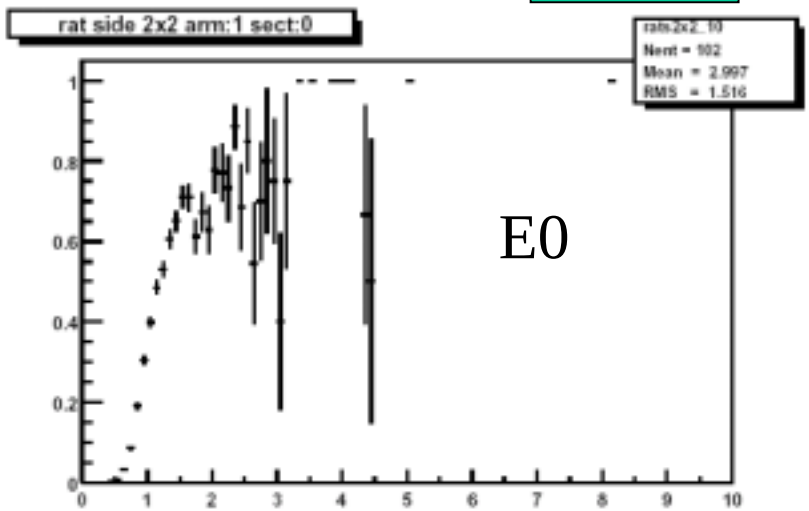
Backups

Edge clusters

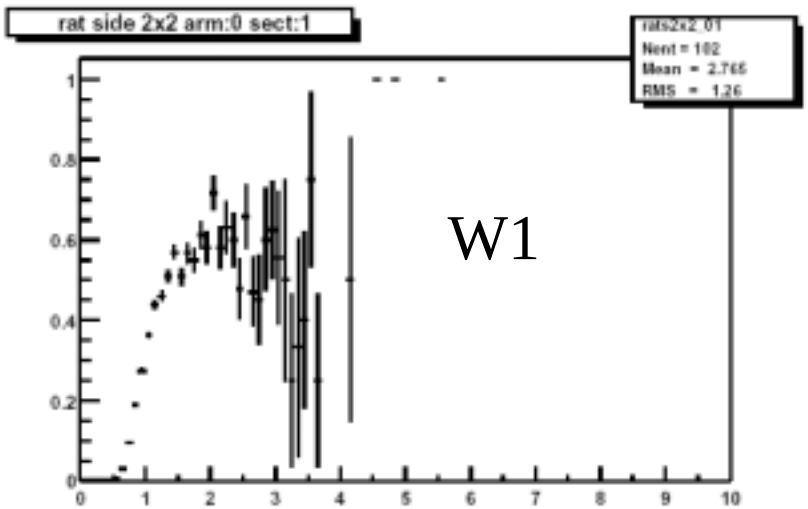




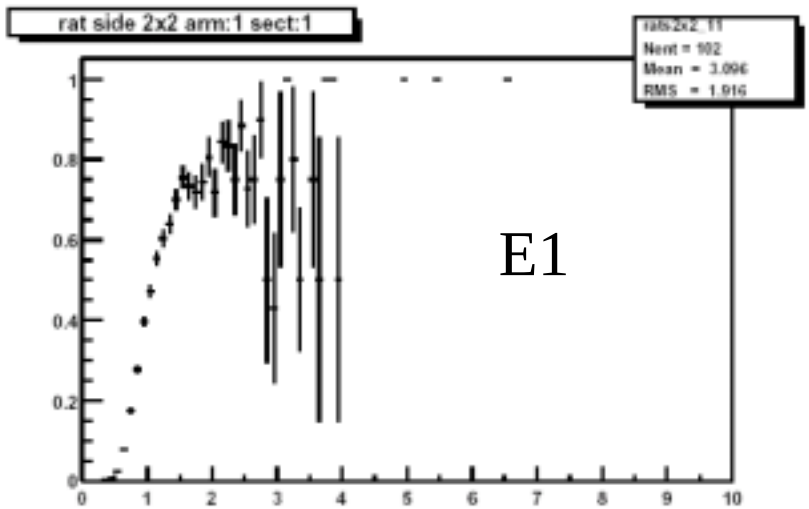
W0



E0

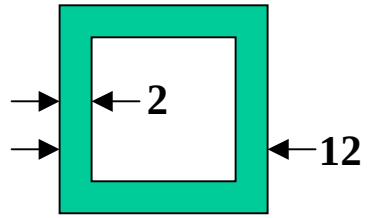


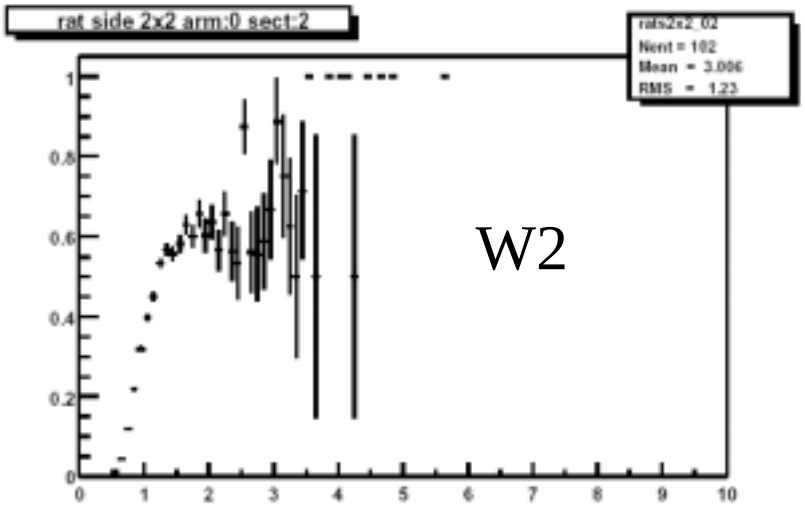
W1

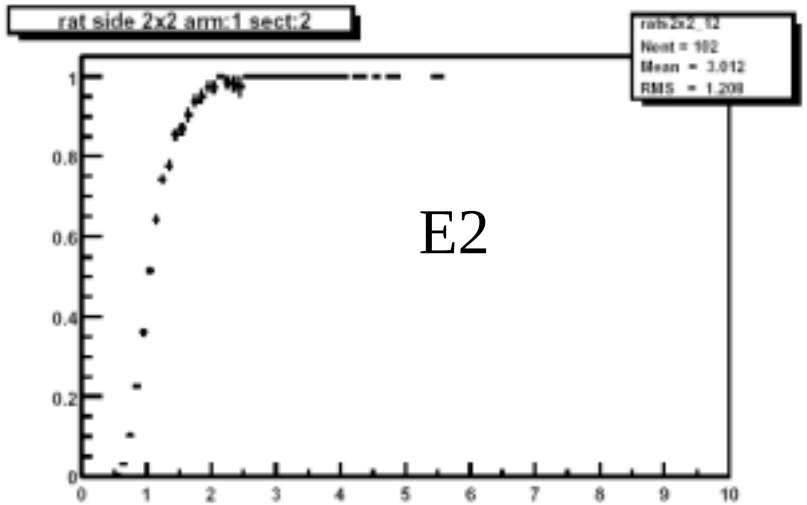


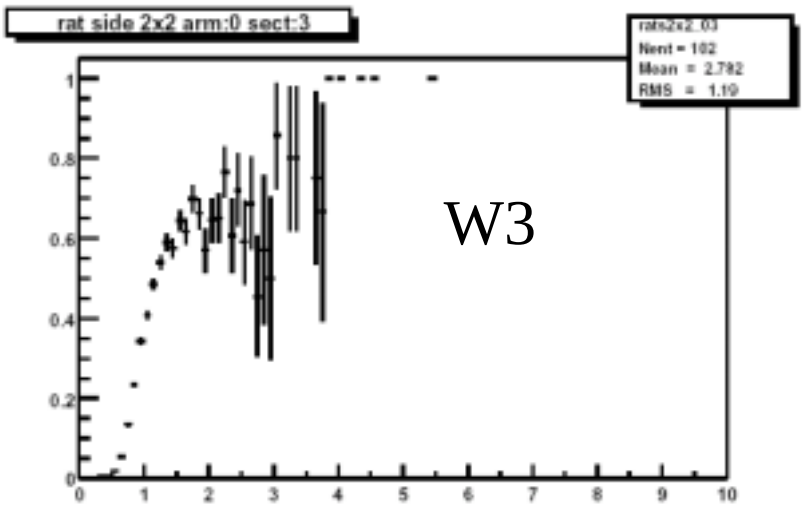
E1

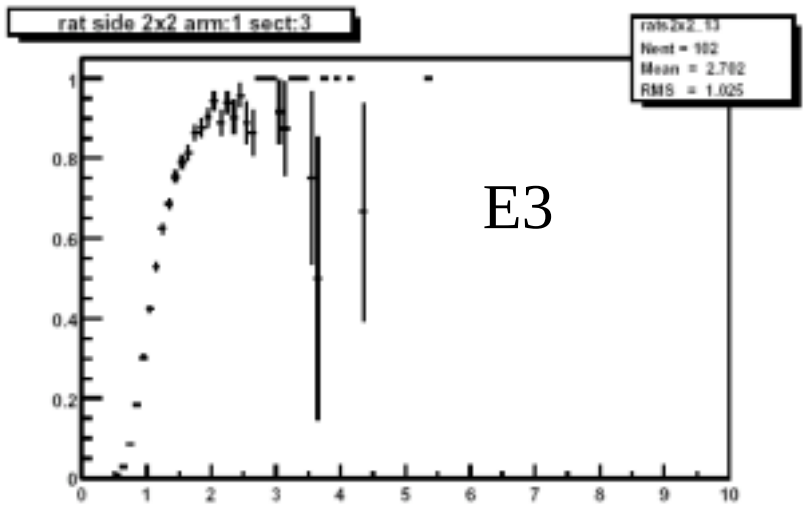
Edge clusters



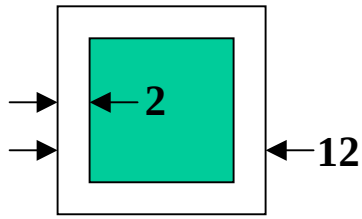


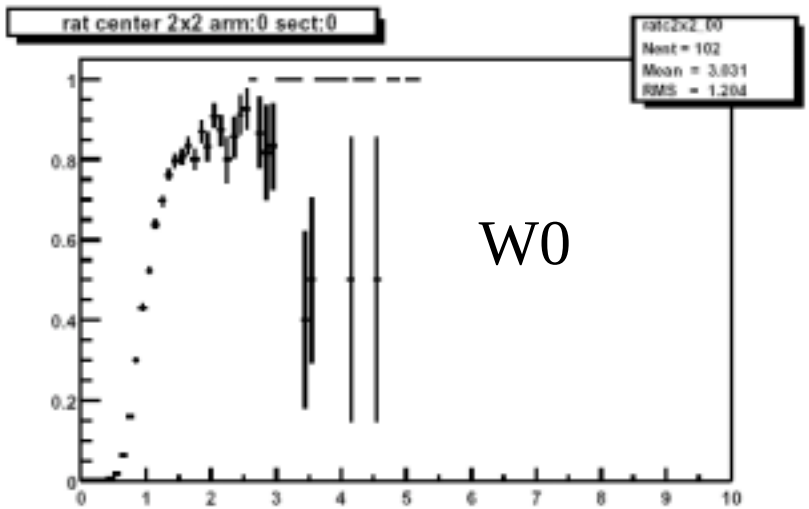


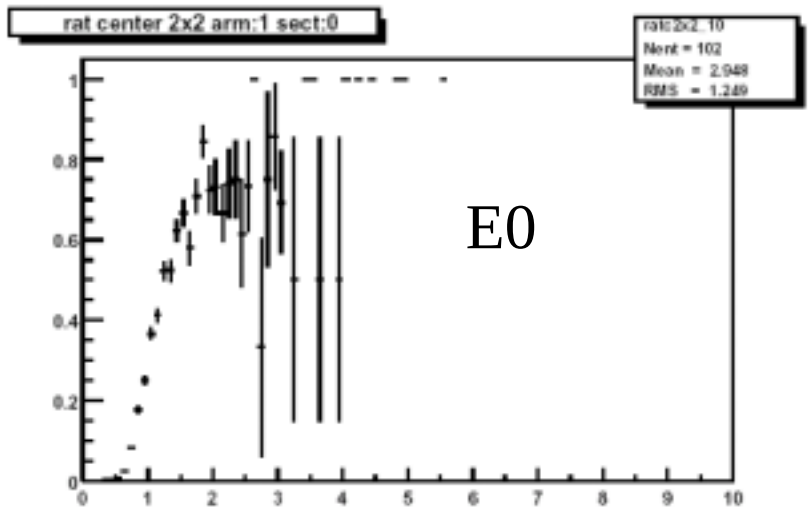


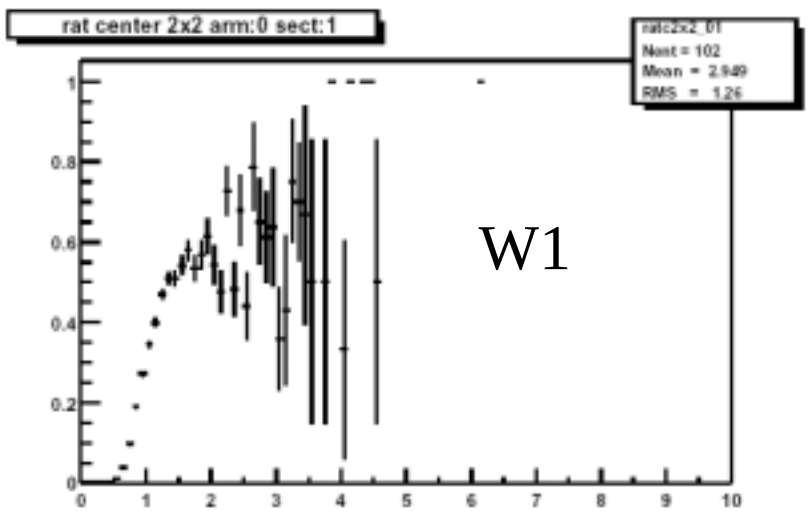


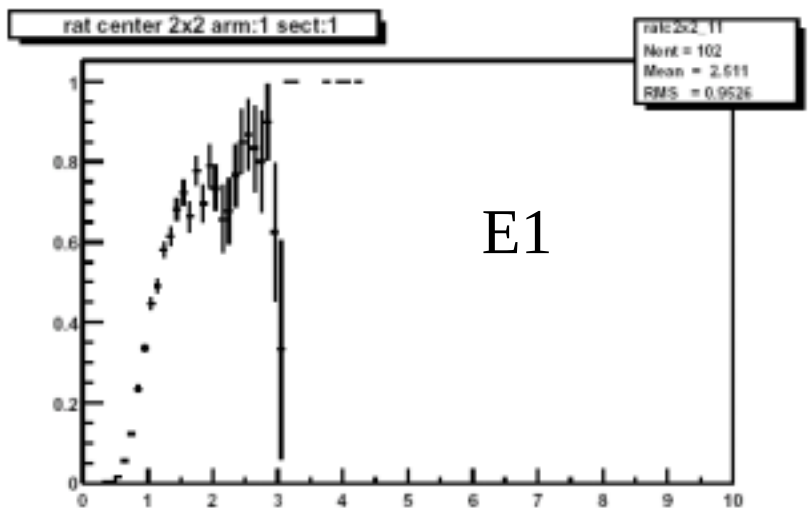
Center clusters











Center clusters